ABSTRACT

In one representative embodiment, multiple ensembles of samples of a periodic or cylcostationary signal are processed in a time aligned manner. The sampling rate of the processing system is adjusted so that an integer number of sampling intervals equals the period of the signal. A cyclic counter is programmed to reset according to the integer number. Also, the cyclic counter may be initialized according to an external trigger. During operation, the cyclic counter is incremented when each sample is received. Continuous operation of the cyclic counter with the capturing of samples enables precise time alignment between ensembles of samples. Specifically, the beginning of a discrete ensemble is identified by a reset of the cyclic counter. Because each ensemble is time aligned, further processing (e.g., coherent averaging) may occur without post-processing to time-shift each sample to achieve the time alignment.